

THE CLAIMS

1. **(Original)** A side-scattering light guide, comprising:

a transparent optically homogenous elongate core to transmit light along the core from end to end;

an optically transmitting sheath, having a lower refractive index than the core, surrounding and in contact with the sides of the core;

diffuser particles within the core, the diffuser particles being transparent, having a refractive index close to that of the core, high optical transmittance, low back reflectance and low absorbance, and being distributed to scatter light being transmitted along the core so that at least some of the scattered light exits the sides of the core; and,

a jacket of diffusing material arranged to intercept scattered light exiting the sides of the core.

2. **(Cancelled)**

3. **(Original)** The side scattering light guide of claim 1, wherein the ratio of the diffuser particles'

refractive index to that of the core varies by less than 1% over the light's wavelength range.

4. **(Cancelled)**

5. **(Previously Presented)** The side scattering light guide of claim 1, wherein the diffuser particles have a size substantially greater than the light's average wavelength.

6. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the optically transmitting sheath surrounding said core is transparent or translucent.

7. **(Cancelled)**

8. **(Previously Presented)** The side-scattering light guide of claim 1, wherein an outer layer of the optically transmitting sheath forms the jacket of diffusing material.

9. **(Previously Presented)** The side-scattering light guide of claim 5, wherein the outer layer of the sheath is non-smooth.

10. **(Previously Presented)** The side-scattering light guide of claim 1, wherein a rough outer surface of the core forms the jacket of diffusing material.

11. **(Previously Presented)** The side-scattering light guide of claim 7 wherein the rough outer surface is produced by a high concentration of diffuser particles in the core.

12. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the jacket of diffusing material surrounds only part of the core.

13. **(Cancelled)**

14. **(Cancelled)**

15. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the jacket of diffusing material is a translucent diffuser.

16. **(Previously Presented)** The side-scattering light guide of claim 1 wherein the jacket of diffusing material is

formed of one of polyethylene, PMMA, PTFE, ABS, PVC, or glass.

17. **(Cancelled)**

18. **(Previously Presented)** The side scattering light guide of claim 1, wherein the jacket of diffusing material is a reflecting diffuser.

19. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the jacket of diffusing material is opaque and reflective.

20. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the jacket of diffusing material is both transmitting and reflective.

21. **(Previously Presented)** The side-scattering light guide of claim 1, wherein parts of the jacket of diffusing material are transmitting, and other parts are reflective.

22. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the jacket of diffusing material is apertured.

23. **(Previously Presented)** The side-scattering light guide of claim 22, wherein the apertures are surrounded by a transmitting diffuser.

24. **(Previously Presented)** The side-scattering light guide of claim 22, wherein the aperture is a longitudinal slit.

25. **(Cancelled)**

26. **(Cancelled)**

27. **(Cancelled)**

28. **(Previously Presented)** The side-scattering light guide of claim 1, wherein the diffuser particles are formed of polymeric material, glass or quartz.

29. **(Cancelled)**

30. **(Cancelled)**

31. **(Previously Presented)** The side-scattering light guide of claim 1, further comprising one or more optical elements adjacent a side of the light guide to collect and direct side-scattered light from said side-scattering light guide.

32. **(Previously Presented)** The side-scattering light of claim 31, wherein the optical element is a lens, a mirror or a diffractive element.

33. **(Cancelled)**

34. **(Cancelled)**

35. **(Previously Presented)** The side scattering light guide of claim 1, wherein the low refractive index sheath is formed of a fluoropolymer or silicone polymer.

36. **(Previously Presented)** The side scattering light guide of claim 1, where the low refractive index sheath is formed of at least one of: poly-tetrafluorethylene (PTFE); copolymers of polytetrafluoroethene and hexafluoropropylene (FEP); and tetrafluorethylene-perfluoralkoxethylene copolymers (PFE); fluoro silicone polymers; polydimethylsiloxane polymers; and polymethylphenylsiloxane polymers.

37. **(Previously Presented)** The side scattering light guide of claim 1, wherein the sheath is a volume of free space.

38. **(Previously Presented)** The side scattering light guide of claim 1, wherein the sheath is fluid.

39. **(Cancelled)**